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AUTHOR Erkut, Sumru
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ABSTRACT

One-hundred-seventy-six male and 116 female college freshmen took part in a questionnaire study of sex differences in attribution of achievement. Achievement was operationalized as grade point index, a performance measure of significance to the subjects, where success-failure feedback is contingent on one's own performance. The best predictor of future grade point average was the previous semester's grades. Expectancy was also predictive of future achievement but through its association with past achievement. Sex differences in attribution were poor predictors of achievement as well as expectancy. It was suggested that sex differences in attributions may be reflections of sex-role orientation but are unrelated to actual achievement. (Author)

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Sex Differences in Attribution of Achievement and Actual Achievement

Sumru Erkut

Boston University

College of Basic Studies

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Sex Differences in Attribution of Achievement and Actual Achievement

The present study investigates the implications of sex differences in achievement attributions and expectancy of success for academic performance. It is hypothesized that sex differences in preference for causal attributions and in expectancy of success may not be as powerful predictors of actual achievement as past success.

Weiner and his colleagues' attributional approach to achievement motivation has given rise to an analysis of achievement on the basis of attributions to ability, effort, luck, and task difficulty (Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971). These four factors can be jointly classified along dimensions of internality and stability such that ability and effort are internal attributions while luck and task difficulty are external; ability and task difficulty are stable attributions while effort and luck are unstable.

A number of studies carried out within Weiner's attributional framework have suggested that there are sex differences in explaining achievement behavior. Although the evidence is far from unequivocal, women seem to have a general preference for external

attributions, preferring to explain their behavior in terms of luck or characteristics of the task (Frieze, Fisher, Hanusa, McHugh, & Valle, in press; Jackaway, 1974; McArthur, 1976). Women have been found to rely on luck attributions to explain both their successes and failures (Feather, 1969; Simon & Feather, 1973). On the other hand, some studies have found no sex differences in attribution (see Luginbuhl, Crowe, & Kahan, 1975; McMahan, 1973).

Furthermore, women tend to have lower expectancies for success (Crandall, 1969; Feather, 1969), especially on tasks which may be considered masculine, such as marble dropping or addition, and even on tasks that may be considered sex-neutral such as concept formation (Frieze, 1975). Again, the evidence on women's lower expectations is not unequivocal. A replication of Feather's (1969) study by Feather and Simon (1973) where the task was solving anagrams showed no expectancy differences between men and women.

The general tendency to form high expectations seems to favor men, especially in competitive situations (Fisher, 1975). The lack of it may put women at a disadvantage, for there is evidence to suggest higher expectancies for success lead to superior performance (Feather, 1966). Even when subjects are randomly given high expectancy levels, they out-perform those who are randomly assigned

to low expectancy levels (Diggory, 1966). Furthermore, those with high expectancies not only perform better, they tend to choose difficult tasks to display their confidence (Veroff, 1969).

Sex differences in attribution patterns and expectancy of future success has led Jackaway (1974) to postulate the low expectation cycle of achievement attributions for women. According to this model, women start out with low generalized expectations. A woman who performs well despite her low initial confidence, attributes the unexpected success to an external or unstable cause such as luck. Since luck is an ever changing entity, she has little reason to expect continued success. Thus, she does not raise her expectancy for future achievement. When a woman receives confirmation of her low expectancy by a poor performance, she is likely to attribute her failure to lack of ability which further lowers her expectancy of future success. This pattern of attributions minimizes the positive effects of success and maximizes the negative effects of failure (Frieze, et.al., in press). The implication of the low expectation cycle is that women may be condemning themselves to failure by virtue of a self-fulfilling prophecy. This likelihood has given impetus to at least one study aimed at exploring the

possibility of breaking the vicious circle of low expectations. Valle and Frieze (1976) have attempted to manipulate causal attributions to change expectancies of future performance.

Before the pessimistic implications of sex differences in attribution and expectancy are accepted as evidence for women's relative lack of achievement, the research on which this conclusion is based needs to be more closely scrutinized. In the majority of studies cited above (e.g., Feather, 1969; Feather & Simon, 1971; Frieze & Weiner, 1971; McMahan, 1973; Valle & Frieze, 1976) the outcome of performance--i.e. success or failure--was experimentally manipulated. Subjects were given success or failure feedback depending on their random assignment to one or another experimental condition. They were then asked to explain their "performance" in terms of ability, effort, luck, or task difficulty and to give their expectancies for future success. In other words, subjects' performance outcome was actually determined by luck. It may well be that women who made luck attributions were no more external than other subjects but that they correctly perceived the outcomes to be randomly determined.

Only in two studies were subjects assigned to success and failure groups based on their own performance (Bailey, Helm, & Glad-

stone, 1975; Simon & Feather, 1973). Both of these studies used grades on university examinations as performance measures. Yet in these studies also, performance was treated as an independent variable. The general focus of studies on sex differences in attribution has been to study the effect of success or failure on expectancy and attribution of achievement. While it may be interesting to investigate the effect of outcome on how that outcome is explained, this research strategy does not address the more important question of whether characteristic ways of expecting and attributing achievement have an effect on one's real-life performance.

Another characteristic of much of the research on sex differences in attribution is that most studies have employed laboratory-type tasks to elicit performance, e.g. solving anagrams. It is doubtful that success or failure in such artificial situations would fully engage one's typical psychological response to real-life achievement. For example, when Simon and Feather (1973) used performance on university examinations as the outcome to be explained, they came across evidence for a defensive bias where failure was attributed to bad luck. This was a pattern not observed in studies employing laboratory tasks.

Thus, inferences made from results of existing studies may not be applicable to the question of whether men and women have different levels of achievement due to differences in explaining their performance. The bulk of research which led to the implication that women achieve less than men has tended to employ experimental manipulations to arrive at the outcome to be explained and to employ artificial tasks to elicit performance. In fact, there has been no direct investigation of the effect of attributions and expectancy on actual achievement, where achievement is the dependent variable.

The present approach differs from that of the bulk of research on sex differences in attributions in four ways: (a) it examines the effect of attributions and expectancy on achievement rather than the effect of outcomes on attributions; (b) the outcomes for which attributions are elicited are a product of the subjects' own performance rather than an experimental manipulation; (c) it employs a personally significant outcome measure--grade point index--rather than performance on a laboratory task; and (d) attributions to past as well as future performance are investigated to establish whether sex differences in attribution are a reflection of a general tendency which holds for past and future achievements.

Method

Subjects

During a class period in introductory psychology college freshmen were asked to volunteer for a study on their perceptions of academic success in college. Close to 95% of the students voluntered yielding two-hundred-ninety-two subjects. Of these 176 were males, 116 were females.

Procedure

Four weeks into the second semester of the freshman year a questionnaire was administered by the instructors in four introductory psychology classes. Students had received their grades for the fall semester five weeks prior to this date but they had not gotten firm feedback on their spring semester performance, as mid-term examinations had not yet been given.

The first question on the questionnaire tapped whether performance for the fall semester was perceived to be lower than, same as, or higher than what might be expected in view of past performance in high school. Next, a short paragraph described how academic performance can be explained in terms on one's ability, effort, luck, and difficulty of the college program. Subjects were asked to assign percentage weights adding up to 100% to these four factors to explain their fall grade point index (GPI). On the questionnaire sheet next

to the entry of ability, effort, luck and difficulty was a subquestion tapping whether the given factor helped, had no effect, or hurt one's performance (e.g., good luck helped, luck had no effect, bad luck hurt). Next, subjects were asked to state what they expected their spring grade point index would be on a six-point scale, where one indicated less than 1.5, a D+ average, and six indicated greater than 3.5, better than a B+ average. They then gave percentage weights to the four factors as determinants of their expected GPI and rated how each factor would affect their performance. Finally, they were asked to rate on a six-point scale their general ability to do well in college, whether they considered themselves successful in school, how satisfied they were with their academic performance, and how important it was for them to be successful in college.

Upon completion of spring semester a record of each subject's fall and spring GPI was obtained from the Registrar's Office.

Results

The wide and even distribution of fall and spring grades justified the use of GPI as a measure of performance. Fall GPI ranged from 0.7 to 4.0, with a mean of 2.4. Spring GPI was found to range from 0.0 to 3.9 again with a mean of 2.4.

Insert Table 1 about here

General Sex Differences

When explaining past achievement males made higher ability attributions, $t(248) = 2.47$, $p < .01$, even though there were no sex differences in perceived general ability to do well in school. Women, on the other hand, made higher attributions to effort, $t(248) = -3.23$, $p < .001$. Women were also more likely to say they tried hard to do well in general, $t(267) = -4.08$, $p < .001$. There were no sex differences in luck or difficulty attributions. When predicting future achievement, however, the only sex difference was in women's tendency to make higher effort attributions, $t(261) = -1.94$, $p < .05$. In general ability and effort attributions were given equally high weight, difficulty attributions received lower weight while luck attributions were the lowest (see Table 1).

In terms of indicating whether a given factor hurt, helped, or had no effect on performance, there were no sex differences except that women were more likely to see the difficulty of college hurting their past performance, $t(234) = -3.06$, $p < .01$, as well as their future performance, $t(211) = -2.98$. $p < .01$.

There were no sex differences in stating whether college performance was higher than, same as, or lower than what would be expected based on high school performance. However, women formed lower

Insert Table 2 about here

expectancies of their future college success, $t(244) = 2.61$, $p < .01$. Women's expectancy of future success was lower even though there were no sex differences in actual academic performance, neither for fall GPI nor for spring GPI (see Table 2).

Explaining Past Performance, Predicting Future Performance

Attributional variables by themselves were only modestly powerful predictors of past achievement. Percentage weights given the four achievement attributions ability, effort, luck, and difficulty, and whether each factor helped, hurt, or had no effect were used as independent variables in a simple multiple regression analysis to explain past performance, along with multiplicatives of the above representing possible interaction effects. These twelve variables, taken simultaneously to determine their relative contributions, were able to explain only 27% of the variance of fall GPI among women and 30% of the variance among mens For women, whether ability and effort helped were the better predictors; for men the powerful predictors were whether ability, effort, and easiness of the program helped (see Table 3).

Insert Table 3 about here

Achievement attributions were even poorer predictors of future performance. They were able to explain only 17.5% of the variance in women's spring GPI and 14% of the men's. For women the best predictor was attributions to effort. Ironically, lower attributions to effort were associated with higher GPI. A measure of the interaction between ability attributions and whether ability helped was also a predictor. For men ability attributions were the most important. Those who assigned substantial weights to their ability and those who perceived their ability to be helped had high spring GPIs.

By far the best predictor of future achievement was past achievement. By itself, fall GPI accounted for close to 70% of the variance in spring GPI for both sexes. When taken together with fall GPI, expectancy for spring GPI, and attitudinal variables, the predictive power of attributional variables were almost completely eliminated (see Table 4). They made a minor contribution to explaining the variance in women's spring GPI but no statistically significant contribution to men's.

Insert Table 4 about here

Expectancies

Men and women did not differ significantly on whether their

fall GPI was lower, higher, or the same as would have been predicted from their high school performance. However, men gave higher expectancies when asked to guess what their future, spring GPI would be (see Table 2).

Expectancies for spring GPI were highly correlated with past performance. The correlation between fall GPI and expectancy was .73 for women and .66 for men. Furthermore, expectancy for spring GPI was a good predictor of spring GPI, $\underline{r}$ = .62 for women and $\underline{r}$ = .64 for men. Taken by itself, expectancy was able to account for nearly 40% of the variance in future success, a much higher predictive power than that displayed by attributional variables. However quite obviously the relatively high correlation between expectancy and spring GPI was due to their mutual association with fall GPI.

Contrary to predictions from the model of sex differences, attributions of past achievement were not good predictors of expectancy. In a stepwise regression analysis attributional variables made relatively small contributions to variance explained (see Table 5), while past semester's GPI emerged as the most powerful predictor of expectancy for both sexes.

Insert Table 5 about here

Discussion

Results show that male and female students, indeed, express different factors in explaining their past college performance. Men prefer ability explanations; women prefer to attribute their outcome to effort. However, despite this difference, they do not differ in their actual achievement. There were no differences in men and women's past semester grade point average. When predicting future grade point average men form significantly higher expectations than women students. Furthermore, women report that their future performance would be affected by effort to a greater extent than men. Despite these differences, again, the actual spring grade point index obtained after the attributions are made show no significant sex differences.

Women's preference for effort and men's preference for ability explanations seem to be consistent with current views on sex roles. The widely held stereotypes bestow greater competence on men than on women (Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972) Thus, men readily attribute their performance to their "superior" abilities while women seem to invoke effort attributions to explain why they succeed despite their general lack of competence. This explanation is supported by Feldman-Summers and Kiesler's findings

that observers also attribute greater effort and motivation to explain women's success than men's (1974).

Yet the results show that relative to the predictive value of past achievement, sex-role related differences of attribution have small value for predicting expectancy for future achievement as well as future achievement itself. Best predictor of future achievement remains past achievement. Expectancy is highly related to future achievement but this relationship seems to be a function of a mutual association with past achievement. The picture that emerges from the results is that compared to more concrete evidence for achievement, sex differences in patterns of attribution prove to be in consequential predictors of actual performance. This finding is supported by Maccoby and Jacklin's review of sex differences which fails to show up sex differences in academic achievement (1974). It appears that sex differences in achievement attributions found even in younger children (Frieze & Bar-Tal, Note 1; Nicholls, 1975) are simply an expression of culturally based sex-role orientations which do not have a direct bearing on achievement behavior

Furthermore, there is evidence to doubt the existence of a general sex differentiated preference for achievement attributions. Men seem to favor ability attributions but only when explaining past

performance. It is women's tendency to prefer effort attributions which holds for both past and future performance. Sex differences in attribution to luck found in previous studies is conspicuously absent. When success or failure is contingent on one's own performance and the measure of performance is not specific to one task but is general, neither sex favors luck attributions. It could be that greater luck attributions found among women in past research is an artifact of experimental methodology. Perhaps women, more than men, had sensed the randomness of the success or failure feedback in those studies. It is also possible that a general measure of performance such as GPI which is determined by many specific performance is less likely to be influenced by luck than any single performance.

These results were obtained in an institutional setting characterized by close student-professor contact. The College of Basic Studies at Boston University is an educational environment committed to personal growth of each individual student

The fact that sex was not a predictor of achievement, even though it was predictive of attributional patterns, may be a function of the support all students receive in this institution. It may well be that in other institutional settings which lack the support systems characteristic of the College

of Basic Studies, patterns of attribution have a bearing on actual achievement. But the point remains that there are institutional settings in which women achieve as highly as men despite evidence for differences in explaining achievement.

Aside from the major question of whether these results will obtain in different institutional settings, several other issues are left unanswered by this study. First among these is whether sex differences in patterns of attribution are in fact a product of widely held sex-role stereotypes. A second and related question is whether among the minority of men and women who subscribe to highly stereotypical views of their gender, patterns of attribution play a more important role in determining achievement than among the majority who do not hold such extreme views. A third issue concerns a methodological difference between this and all other studies on achievement attributions. In other attribution studies, the outcome for which attributions were elicited was the product of specific, discreet, short-term effort--e.g. solving anagrams or detecting signals on a screen in the duration of one experimental setting, or taking one test. In this study, however, the outcome (grade point index) was the product of concerted effort lasting approximately four months. It may be that explanations for achievement influence

specific instances of achievement but are not equally applicable to predicting achievement sustained over a long period of time.

Reference Note

1. Frieze, I. H. & Bar-Tal, D. Developmental trends in information utilization for making causal attributions. Paper presented at the meeting of the Eastern Psychological Association, New York, April 1976.

References

Bailey, R. C., Helm, B., & Gladstone, R. The effects of success and failure in a real-life setting: Performance, attribution, affect, and expectancy. Journal of Psychology, 1975, 89, 137-147.

Broverman, I. K., Vogel, S. R., Broverman, D. M., Clarkson, F. E., & Rosenkrantz, P. S. Sex-role stereotypes: A current appraisal. Journal of Social Issues, 1972, 28, 59-78.

Crandall, V. C. Sex differences in expectancy of intellectual and academic reinforcement. In C. P. Smith (Ed.), Achievement-related motives in children. New York: Russell Sage Foundation, 1969.

Diggory, J. Self evaluation: Concepts and studies. New York: John Wiley & Sons, 1966.

Feather, N. T. Attribution of responsibility and valence of success and failure in relation to initial confidence and task performance. Journal of Personality and Social Psychology, 1969, 13, 129-144.

Feather, N. T., & Simon, J. G. Causal attributions for success and failure in relation to expectations of success based upon selective or manipulative control. Journal of Personality, 1971, 39, 527-541.

Feather, N. T. & Simon, J. G. Fear of success and causal attribution for outcome. Journal of Personality, 1973. 41, 525-542.

Feldman-Summers, S., & Kiesler, S. B.. Those who are number two try harder: The effect of sex on attributions of causality. Journal of Personality and Social Psychology, 1974, 30, 846-855.

Fisher, J. Effects of a competitive atmosphere on causal attributions: Theoretical implications. Paper read at the 1975 Eastern Psychological Association meetings.

Frieze, I. H. Women's expectations for and causal attributions of success and failure. In M. Mednick, S. Tangri, & L. Hoffman (Eds), Women and achievement: Social and motivational analyses Washington, D. C.: Hemisphere Publishing Corporation, 1975.

Frieze, I. H., Fisher, J., Hanusa, B., McHugh, M., & Valle, V. A. Attributions of success and failure as internal and external barriers to achievement in women. In J. A. Sherman & F. Denmar (Eds.). Psychology of Women: Future of research. Psychological Dimensions, in press.

Frieze, I., & Weiner, B. Cue utilization and attributional judgments for success and failure. Journal of Personality, 1971, 39, 591-605.

Jackaway, R. Sex differences in achievement motivation, behavior, and attributions about success and failure. Unpublished doctoral dissertation, SUNY, Albany, 1974.

Luginbuhl, J. E. R., Crowe, S. H., & Kahan, J. P. Causal attributions for success and failure. Journal of Personality and Social Psychology, 1975, 31, 86-93.

Maccoby, E. E., & Jacklin, C. Psychology of sex differences. Stanford, Calif.: Stanford University Press, 1974.

McMahan, I. Relationship between causal attributions and expectancy of success. Journal of Personality and Social Psychology, 1973, 28, 108-114.

Nicholls, J. Causal attributions and other achievement-related cognitions: Effects of task, outcome, attainment value, and sex. Journal of Personality and Social Psychology, 1975, 31, 379-389.

Simon, J. G., & Feather, N. T. Causal attributions for success and failure at university examinations. Journal of Educational Psychology, 1973, 64, 46-56.

Valle, A. V., & Frieze, I. H. Stability of causal attributions as a mediator in changing expectations for success. Journal of Personality and Social Psychology, 1976, 33, 579-587.

Veroff, J. Social comparison and the development of achievement motivation. In C. P. Smith (Ed.), Achievement-related motives in children. New York: Russell Sage, 1969.

Weiner, B., Frieze, I., Kukla, A., Reed, I., Rest, S. A., & Rosenbaum, R. M. Perceiving the causes of success and failure. New York: General Learning Press, 1971.

Table 1

Sex Differences in Mean Attribution for Past and Future Achievement

	Past Achievement			Future Achievement		
Attribution	Men	Women	*t*	Men	Women	*t*
Ability	39.2	34.7	2.47*	36.6	34.3	1.25
Effort	31.6	37.6	-3.23***	38.4	42.2	-1.94*
Luck	8.9	7.5	1.3.	8.1	6.5	1.50
Task difficulty	19.9	20.0	-0.06	16.3	17.7	-0.81

*$p < .05$, two-tailed.

***$p < .001$, two-tailed.

Table 2

Sex Differences in Mean Academic Achievement and Expectancy

	Men	Women	t
Fall GPI	2.41	2.41	-0.03
Spring GPI	2.43	2.37	0.74
Fall GPI, Higher, Lower, Same as expected	1.86	1.81	0.50
Expectancy for Spring GPI	4.10	3.81	2.61**

**$p < .01$, two-tailed.

Table 3

Explanatory Power of Attributions for Past and Future Achievement: Change in Percentage of Variance Explained in Simple Regression

	Past Achievement		Future Achievement	
Source	Men	Women	Men	Women
Ability (A)	0.1%	0.7%	2.7%	0.0%
Effort (B)	0.7%	1.4%	0.1%	5.0%
Luck (C)	1.1%	0.6%	1.6%	2.1%
Difficulty/Ease (D)	3.5%	2.8%	0.4%	0.0%
Ability Helped (E)	12.6%	5.1%	2.8%	0.2%
Effort Helped (F)	3.0%	8.7%	0.1%	0.0%
Luck Helped (G)	1.1%	0.2%	0.2%	1.0%
Ease Helped (H)	4.1%	0.8%	0.6%	0.8%
A X E	1.9%	4.2%	0.6%	0.8%
B X F	0.4%	2.5%	1.5%	2.7%
C X G	1.2%	0.2%	2.5%	1.1%
D X H	0.1%	0.0%	0.6%	0.7%
Total Variance Explained	29.8%	27.2%	13.9%	17.5%

Table 4

Best Predictors of Spring GPI: Contributions to Percentage of Variance Explained in Stepwise Regression

Predictor	Men	Women
Fall GPI	67.5%	69.1%
Expectancy for Spring GPI	1.5%	
Able to Do Well	.8%	1.9%
Try Hard for Good Grades		1.2%
Attribution to Effort		1.4%
Attribution to Luck		1.2%
Total Variance Explained	69.8%	74.8%

Table 5

Best Predictors of Expectancy for Future Achievement: Contributions to Percentage of Variance Explained in Stepwise Regression

Predictor	Men	Women
Fall GPI	44.2%	54.3%
Able to Do Well	6.5%	2.5%
Attribution to Difficulty/Ease	3.1%	
Effort Helped	1.7%	
Ability Helped	1.3%	
Success is Important	1.5%	
Satisfied with Performance	1.0%	
College Program is Hard	1.0%	
Try Hard for Good Grades	1.4%	
Attribution to Ability		7.2%
Successful in College		6.0%
Attribution to Luck		1.7%
Easiness of Program Helped		1.7%
Total Variance Explained	61.7%	73.4%